

# NATIONAL CLIMATIC DATA CENTER

RESEARCH CUSTOMER SERVICE GROUP

## WHITE CHRISTMAS?



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## INTRODUCTION

Will we have a white Christmas? It's an age-old question that occurs to almost everyone this time of year. The National Climatic Data Center (NCDC) has created a new report which contains updated maps and tables showing the percent probabilities for a snow depth of at least 1 inch on Christmas morning, as well as the probabilities for a depth of at least 5 inches and 10 inches. The "First Order" Summary of Day Dataset for the period of 1961-1990 was used to compute these statistics. Only stations with at least 25 years of data were used and the '61-'90 period was chosen to coincide with the standard period for computing climatological normals.

## DISCUSSION

Following is a brief summary of our findings:

Greatest probability for at least 1-inch snow depth (continental U.S.):

100% - Marquette MI  
Sault Ste Marie MI  
Hibbing MN  
International Falls MN  
Stampede Pass WA

Greatest probability for at least 5-inch snow depth (continental U.S.):

100% - Stampede Pass WA

Greatest probability for at least 10-inch snow depth (continental U.S.):

96% - Stampede Pass WA

Generally, the greatest probabilities lie where they would be expected--over the northern U.S. and in mountainous areas. In defining a 'white Christmas' as having a snow depth of at least 1 inch, the chances are 60% or better over an area including much of the northern Rockies, the northern Great Plains, the Great Lakes area, and most of New England. The chances are less than 20% over most of the southern third of the country excluding the Rockies, along with the Pacific coast.

The 5 and 10-inch maps (Figures 3-6) indicate areas where there is a greater likelihood of encountering travel problems due to heavy snow. However, keep in mind that this is based on snow depth and not necessarily on newly fallen snow. Also, it is important to remember that higher mountain areas (e.g., elevation of 8000 feet in an area averaging about 4000 feet) will tend to have higher probabilities for each of the 3 categories.

## TABLES AND FIGURES

Table 1 presents city-by-city probabilities for at least 1, 5, and 10-inch depths on Christmas morning. Figures 1 through 6 display these probabilities for the continental U.S. in map form with city-by-city plots and with contours at 20 percent intervals.

If you desire further data related to these tables and figures, please contact NCDC (phone 704-271-4800, fax 704-271-4876, internet 'orders@ncdc.noaa.gov'). This report, including images, is also available in color on our WWW homepage (<http://www.ncdc.noaa.gov>).

Table 1

Probability of snow depth on  
Christmas Day greater than or  
equal to values (in inches)  
shown at top of column

	1	5	10		1	5	10
ALABAMA				ARKANSAS			
ANNISTON	0%	0%	0%	FORT SMITH	10%	0%	0%
BIRMINGHAM	0%	0%	0%	LITTLE ROCK	3%	0%	0%
HUNTSVILLE	3%	0%	0%	CALIFORNIA			
MOBILE	0%	0%	0%	ALAMEDA	0%	0%	0%
MONTGOMERY	0%	0%	0%	BAKERSFIELD	0%	0%	0%
MUSCLE SHOALS	7%	0%	0%	BISHOP	3%	0%	0%
TUSCALOOSA	0%	0%	0%	BLUE CANYON	74%	48%	41%
ALASKA				EUREKA	0%	0%	0%
ADAK	43%	23%	3%	FRESNO	0%	0%	0%
ANCHORAGE	90%	70%	37%	LEMOORE	0%	0%	0%
ANNETTE	17%	10%	0%	LONG BEACH	0%	0%	0%
BARROW	100%	80%	30%	LOS ANGELES	0%	0%	0%
BARTER ISLAND	100%	93%	39%	OXNARD	0%	0%	0%
BETHEL	87%	50%	13%	PASO ROBLES	0%	0%	0%
BETTLES	100%	100%	100%	RED BLUFF	0%	0%	0%
BIG DELTA	97%	57%	23%	SACRAMENTO	0%	0%	0%
COLD BAY	40%	10%	3%	SALINAS	0%	0%	0%
CORDOVA	63%	43%	20%	SAN DIEGO	0%	0%	0%
FAIRBANKS	100%	100%	77%	SAN FRANCISCO	0%	0%	0%
GULKANA	97%	83%	53%	SANTA BARBARA	0%	0%	0%
HOMER	67%	30%	13%	SANTA MARIA	0%	0%	0%
JUNEAU	62%	31%	14%	STOCKTON	0%	0%	0%
KENAI	80%	67%	37%	COLORADO			
KING SALMON	60%	20%	3%	ALAMOSA	60%	10%	0%
KODIAK	20%	0%	0%	DENVER	50%	13%	7%
KOTZEBUE	100%	97%	77%	GRAND JUNCTION	40%	7%	0%
MC GRATH	100%	100%	77%	PUEBLO	28%	3%	0%
NORTHWAY	100%	93%	66%	TRINIDAD	37%	3%	0%
SITKA	27%	10%	3%	CONNECTICUT			
ST PAUL ISLAND	53%	7%	0%	BRIDGEPORT	30%	10%	0%
TALKEETNA	100%	93%	79%	HARTFORD	57%	23%	3%
YAKUTAT	83%	60%	40%	DELAWARE			
ARIZONA				WILMINGTON	13%	3%	3%
FLAGSTAFF	56%	36%	12%				
PHOENIX	0%	0%	0%	APALACHICOLA	0%	0%	0%
PRESCOTT	10%	3%	3%	DAYTONA BEACH	0%	0%	0%
TUCSON	3%	0%	0%	FORT MYERS	0%	0%	0%
WINSLOW	20%	3%	0%	JACKSONVILLE	0%	0%	0%
YUMA	0%	0%	0%				
DISTRICT OF COLUMBIA							
WASHINGTON	13%	7%	0%				
FLORIDA							

KEY WEST	0%	0%	0%
MIAMI	0%	0%	0%
ORLANDO	0%	0%	0%
PENSACOLA	0%	0%	0%
TALLAHASSEE	0%	0%	0%
TAMPA	0%	0%	0%
WEST PALM BEACH	0%	0%	0%

#### GEORGIA

ATHENS	0%	0%	0%
ATLANTA	0%	0%	0%
AUGUSTA	0%	0%	0%
BRUNSWICK	4%	0%	0%
COLUMBUS	0%	0%	0%
MACON	0%	0%	0%
SAVANNAH	3%	0%	0%

#### HAWAII

HILO	0%	0%	0%
HONOLULU	0%	0%	0%
KAHULUI	0%	0%	0%
LIHUE	0%	0%	0%

#### IDAHO

BOISE	30%	10%	0%
BURLEY	38%	3%	3%
IDAHO FALLS	70%	30%	13%
LEWISTON	10%	0%	0%
POCATELLO	40%	17%	0%

#### ILLINOIS

CHICAGO	40%	7%	0%
MOLINE	47%	10%	0%
PEORIA	40%	10%	0%
QUINCY	32%	7%	0%
ROCKFORD	57%	13%	3%
SPRINGFIELD	33%	7%	0%

#### INDIANA

EVANSVILLE	13%	3%	0%
FORT WAYNE	47%	7%	0%
INDIANAPOLIS	30%	3%	0%
SOUTH BEND	67%	37%	7%
WEST LAFAYETTE	24%	8%	4%

#### MASSACHUSETTS

BOSTON	23%	17%	3%
MILTON	55%	21%	7%
SOUTH WEYMOUTH	33%	13%	10%
WORCESTER	60%	27%	10%

#### MICHIGAN

ALPENA	83%	47%	13%
DETROIT	50%	13%	0%

#### IOWA

CEDAR RAPIDS	39%	7%	0%
DES MOINES	50%	17%	7%
DUBUQUE	62%	21%	7%
MASON CITY	57%	30%	17%
SIOUX CITY	63%	13%	7%
WATERLOO	70%	13%	3%

#### KANSAS

CONCORDIA	24%	3%	3%
DODGE CITY	27%	0%	0%
GARDEN CITY	25%	0%	0%
GOODLAND	30%	3%	3%
RUSSELL	20%	0%	0%
SALINA	11%	4%	4%
TOPEKA	23%	3%	0%
WICHITA	23%	0%	0%

#### KENTUCKY

BOWLING GREEN	14%	3%	0%
COVINGTON	17%	0%	0%
LEXINGTON	10%	3%	0%
LONDON	16%	12%	0%
LOUISVILLE	13%	0%	0%
PADUCAH	17%	3%	0%

#### LOUISIANA

BATON ROUGE	0%	0%	0%
LAFAYETTE	0%	0%	0%
LAKE CHARLES	0%	0%	0%
MONROE	4%	0%	0%
NEW ORLEANS	0%	0%	0%
SHREVEPORT	0%	0%	0%

#### MAINE

AUGUSTA	90%	52%	21%
BRUNSWICK	80%	40%	17%
CARIBOU	97%	77%	57%
HOULTON	96%	74%	52%
PORTLAND	83%	43%	13%

#### MARYLAND

LEXINGTON PARK	13%	10%	3%
SALISBURY	14%	3%	0%
FLINT	63%	10%	0%
GRAND RAPIDS	73%	37%	3%
HOUGHTON LAKE	82%	56%	0%
LANSING	73%	17%	0%
MARQUETTE	100%	86%	71%
MUSKEGON	70%	37%	13%
PELLSTON	89%	69%	35%
SAGINAW	61%	18%	0%
SAULT STE MARIE	100%	80%	53%
TRAVERSE CITY	87%	50%	17%

MINNESOTA				SCOTTSDLUFF	47%	3%	0%
ALEXANDRIA	89%	41%	11%	VALENTINE	61%	14%	4%
DULUTH	97%	63%	43%	NEVADA			
HIBBING	00%	66%	41%	ELKO	47%	13%	0%
INTERNATIONAL FALLS	00%	73%	53%	ELY	50%	13%	0%
MINNEAPOLIS	73%	30%	13%	LAS VEGAS	0%	0%	0%
REDWOOD FALLS	62%	27%	8%	RENO	20%	3%	0%
ST CLOUD	73%	37%	10%	WINNEMUCCA	37%	3%	0%
MISSISSIPPI				NEW HAMPSHIRE			
GREENWOOD	3%	0%	0%	CONCORD	87%	57%	7%
JACKSON	0%	0%	0%	LEBANON	85%	70%	30%
MCCOMB	0%	0%	0%	MOUNT WASHINGTON	93%	63%	27%
MERIDIAN	0%	0%	0%	NEW JERSEY			
MISSOURI				ATLANTIC CITY	7%	3%	0%
CAPE GIRARDEAU	18%	0%	0%	MILLVILLE	14%	3%	0%
JOPLIN	18%	4%	0%	NEWARK	23%	10%	0%
SPRINGFIELD	23%	7%	0%	NEW MEXICO			
ST LOUIS	23%	3%	0%	ALBUQUERQUE	3%	0%	0%
MONTANA				CLAYTON	17%	0%	0%
BILLINGS	63%	17%	0%	NEW YORK			
BOZEMAN	73%	17%	3%	ALBANY	63%	30%	13%
BUTTE	87%	17%	0%	BINGHAMTON	67%	43%	17%
GLASGOW	77%	30%	0%	BUFFALO	57%	23%	13%
GREAT FALLS	57%	17%	3%	GLENS FALLS	76%	59%	21%
HAVRE	61%	21%	4%	MASSENA	77%	47%	23%
HELENA	67%	17%	0%	NEW YORK	10%	7%	0%
KALISPELL	80%	43%	3%	POUGHKEEPSIE	45%	28%	7%
LEWISTOWN	76%	32%	12%	ROCHESTER	60%	23%	3%
MILES CITY	57%	32%	4%	SYRACUSE	70%	47%	20%
MISSOULA	73%	20%	0%	UTICA	71%	46%	18%
NEBRASKA				WATERTOWN	69%	41%	21%
GRAND ISLAND	40%	10%	10%	GRAND FORKS	89%	46%	7%
NORFOLK	57%	17%	7%	MINOT	79%	32%	14%
NORTH PLATTE	33%	10%	0%	WILLISTON	79%	31%	3%
OMAHA	44%	8%	4%	OHIO			
NORTH CAROLINA				AKRON	40%	7%	0%
ASHEVILLE	7%	0%	0%	CINCINNATI	11%	4%	0%
CAPE HATTERAS	3%	3%	0%	CLEVELAND	50%	17%	0%
CHARLOTTE	0%	0%	0%	COLUMBUS	23%	0%	0%
CHERRY POINT	3%	3%	3%	DAYTON	27%	3%	0%
GREENSBORO	10%	0%	0%	FINDLAY	41%	0%	0%
HICKORY	3%	0%	0%	MANSFIELD	47%	3%	0%
JACKSONVILLE	4%	4%	4%	TOLEDO	57%	3%	0%
NEW BERN	3%	3%	0%	YOUNGSTOWN	50%	10%	0%
RALEIGH	3%	0%	0%	ZANESVILLE	21%	3%	0%
WILMINGTON	3%	3%	3%				
NORTH DAKOTA							
BISMARCK	87%	30%	0%				
FARGO	83%	37%	3%				

OKLAHOMA				BEAUFORT	3%	0%	0%
				CHARLESTON	3%	0%	0%
				COLUMBIA	0%	0%	0%
MCALESTER	4%	0%	0%	FLORENCE	3%	0%	0%
OKLAHOMA CITY	3%	0%	0%	GREENVILLE	3%	0%	0%
TULSA	7%	0%	0%	SOUTH DAKOTA			
OREGON				ABERDEEN	59%	19%	0%
ASTORIA	3%	0%	0%	HURON	60%	27%	7%
EUGENE	7%	0%	0%	PIERRE	47%	10%	0%
MEDFORD	3%	0%	0%	RAPID CITY	47%	7%	0%
NORTH BEND	0%	0%	0%	SIOUX FALLS	67%	27%	7%
PENDLETON	13%	7%	0%	TENNESSEE			
PORTLAND	0%	0%	0%	BRISTOL	17%	3%	0%
REDMOND	20%	7%	0%	CHATTANOOGA	3%	0%	0%
SALEM	3%	0%	0%	CROSSVILLE	14%	7%	3%
SEXTON SUMMIT	44%	33%	7%	JACKSON	7%	3%	0%
PENNSYLVANIA				KNOXVILLE	10%	3%	0%
ALLENTOWN	30%	10%	3%	MEMPHIS	7%	3%	3%
ALTOONA	31%	3%	0%	NASHVILLE	13%	3%	0%
BRADFORD	70%	37%	23%	OAK RIDGE	7%	3%	0%
DUBOIS	52%	28%	14%	TEXAS			
ERIE	57%	23%	10%	ABILENE	3%	0%	0%
HARRISBURG	33%	10%	3%	AMARILLO	7%	0%	0%
PHILADELPHIA	10%	7%	3%	AUSTIN	0%	0%	0%
PITTSBURGH	33%	7%	0%	BEEVILLE	0%	0%	0%
WILKES-BARRE	43%	17%	3%	BROWNSVILLE	0%	0%	0%
WILLIAMSPORT	43%	10%	0%	COLLEGE STATION	0%	0%	0%
RHODE ISLAND				CORPUS CHRISTI	0%	0%	0%
PROVIDENCE	37%	10%	0%	DALLAS	0%	0%	0%
SOUTH CAROLINA				DEL RIO	0%	0%	0%
GALVESTON	0%	0%	0%	EL PASO	0%	0%	0%
HOUSTON	0%	0%	0%	MONTPELIER	93%	72%	41%
KINGSVILLE	0%	0%	0%	VIRGINIA			
LUBBOCK	3%	0%	0%	LYNCHBURG	13%	3%	0%
LUFKIN	0%	0%	0%	NORFOLK	3%	0%	0%
MCALLEN	0%	0%	0%	RICHMOND	7%	0%	0%
MIDLAND	0%	0%	0%	ROANOKE	17%	7%	0%
PORT ARTHUR	0%	0%	0%	STERLING	17%	10%	0%
SAN ANGELO	0%	0%	0%	VIRGINIA BEACH	0%	0%	0%
SAN ANTONIO	0%	0%	0%	WALLOPS ISLAND	16%	0%	0%
VICTORIA	0%	0%	0%	WASHINGTON			
WACO	0%	0%	0%	BELLINGHAM	10%	7%	0%
WICHITA FALLS	3%	0%	0%	OLYMPIA	3%	0%	0%
UTAH				QUILLAYUTE	0%	0%	0%
CEDAR CITY	33%	7%	0%	SEATTLE	7%	0%	0%
MILFORD	46%	11%	0%	SPOKANE	70%	30%	3%
SALT LAKE CITY	53%	13%	3%	STAMPEDE PASS	100%	100%	96%
VERMONT				WALLA WALLA	17%	3%	0%
BURLINGTON	77%	50%	13%	WENATCHEE	67%	43%	17%
				WHIDBEY ISLAND	7%	0%	0%

WEST VIRGINIA

BECKLEY	36%	7%	4%
BLUEFIELD	24%	10%	0%
CHARLESTON	30%	3%	0%
ELKINS	35%	10%	0%
HUNTINGTON	23%	0%	0%
MARTINSBURG	24%	3%	3%
MORGANTOWN	31%	0%	0%
PARKERSBURG	24%	3%	0%

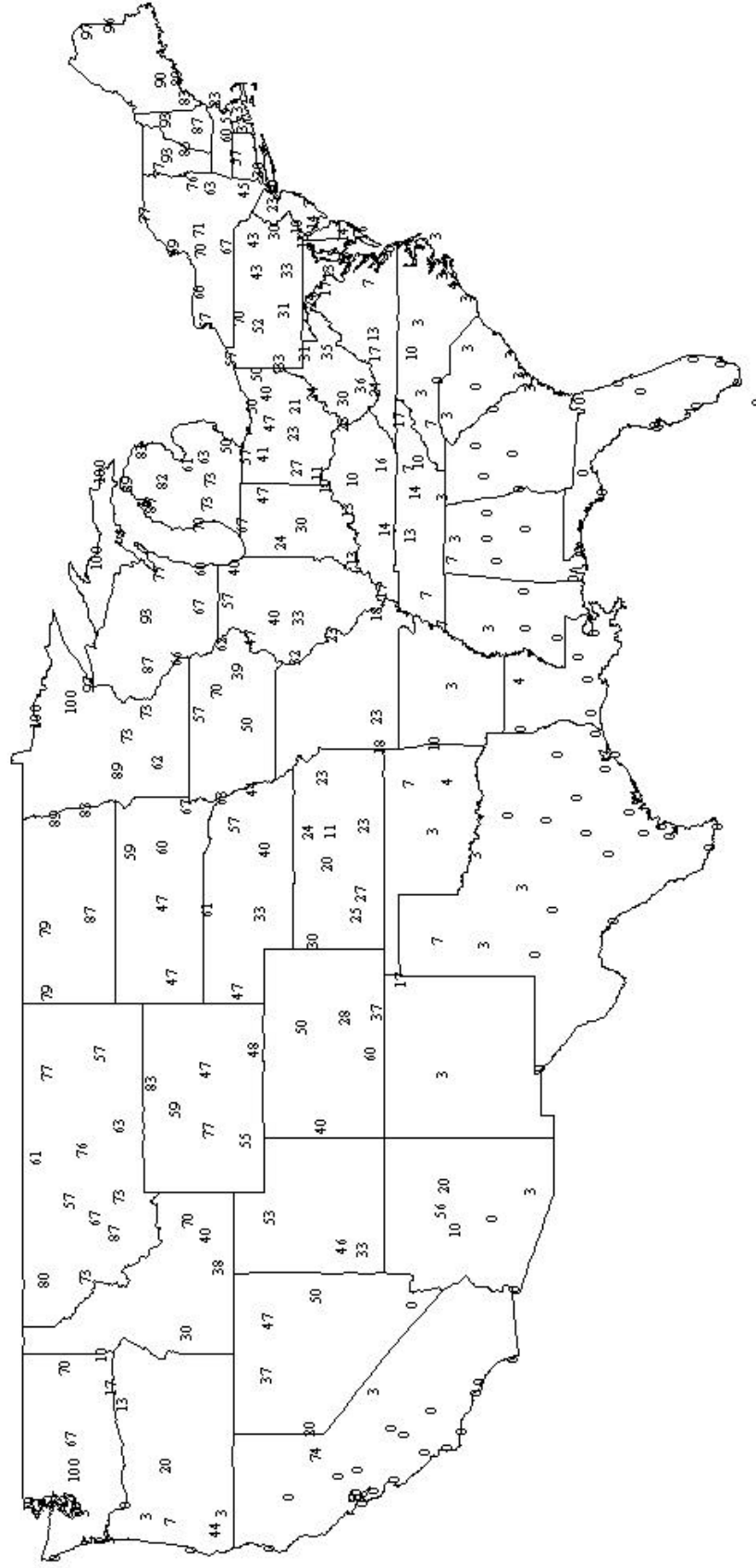
WISCONSIN

EAU CLAIRE	87%	33%	17%
GREEN BAY	77%	40%	3%
LA CROSSE	66%	28%	10%
MADISON	67%	20%	7%
MILWAUKEE	60%	10%	3%
WAUSAU	93%	54%	25%

WYOMING

CASPER	47%	10%	3%
LANDER	77%	37%	17%
LARAMIE	48%	4%	0%
ROCK SPRINGS	55%	10%	3%
SHERIDAN	83%	17%	7%
WORLAND	59%	24%	3%

# Probability of a White Christmas (snow depth 1" or more)

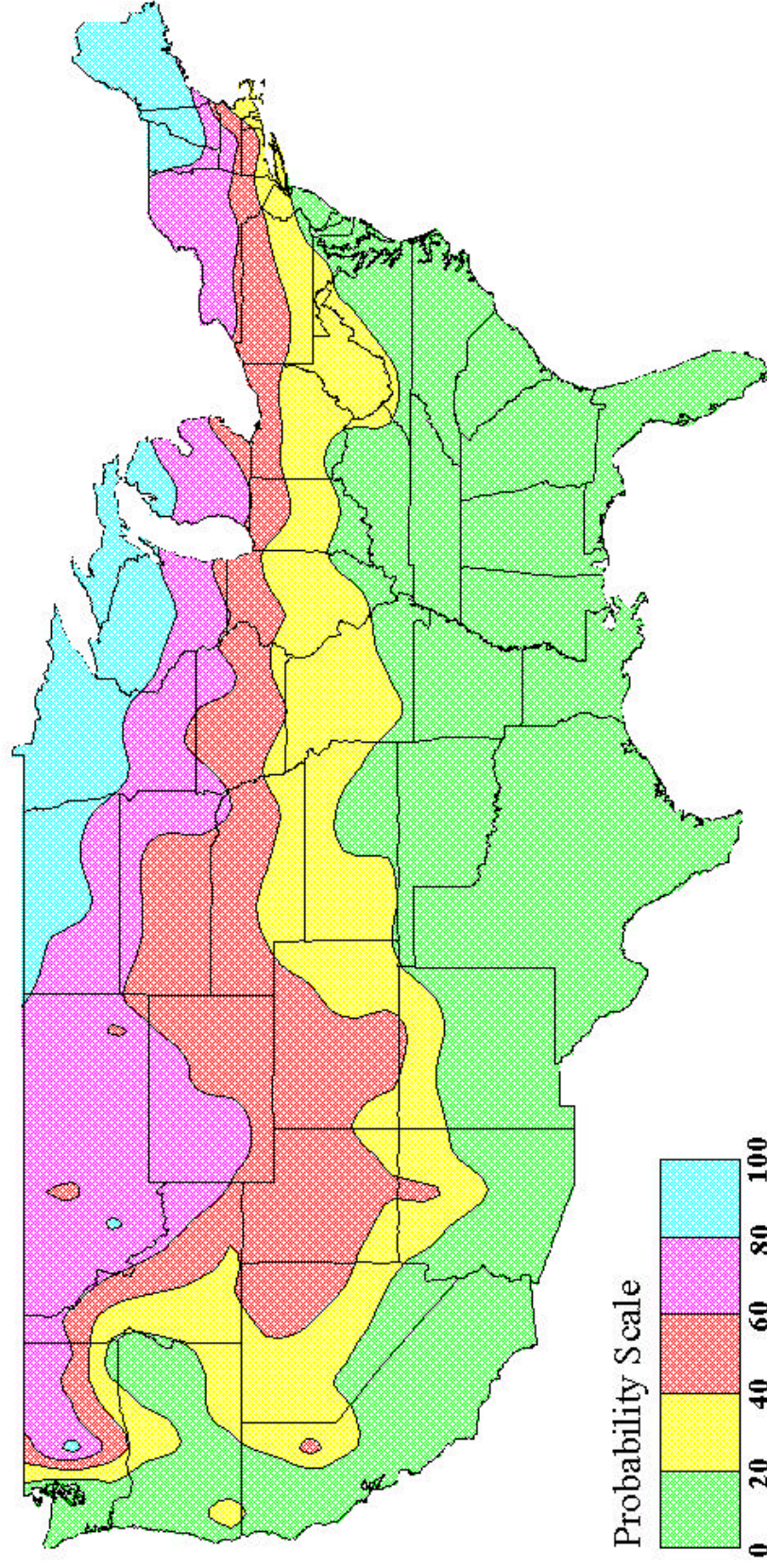


*High mountain areas may have higher probabilities than shown.*

Fig. 1.



# Probability of a White Christmas (snow depth 1" or more)



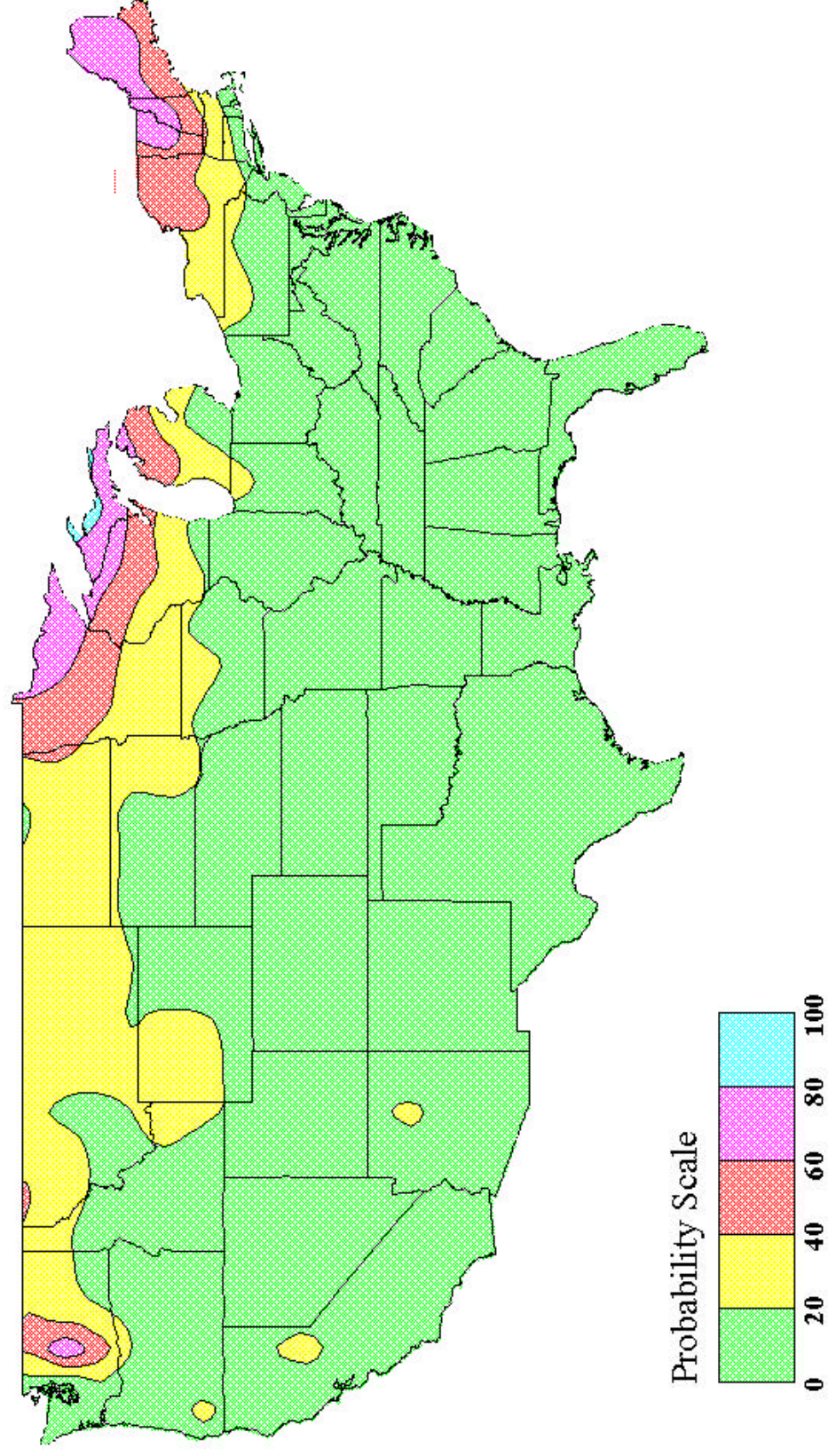
*High mountain areas may have higher probabilities than shown.*

Fig. 2.

Fig. 3.



## Probability of Snow Depth 5" or more on Christmas Day



*High mountain areas may have higher probabilities than shown.*

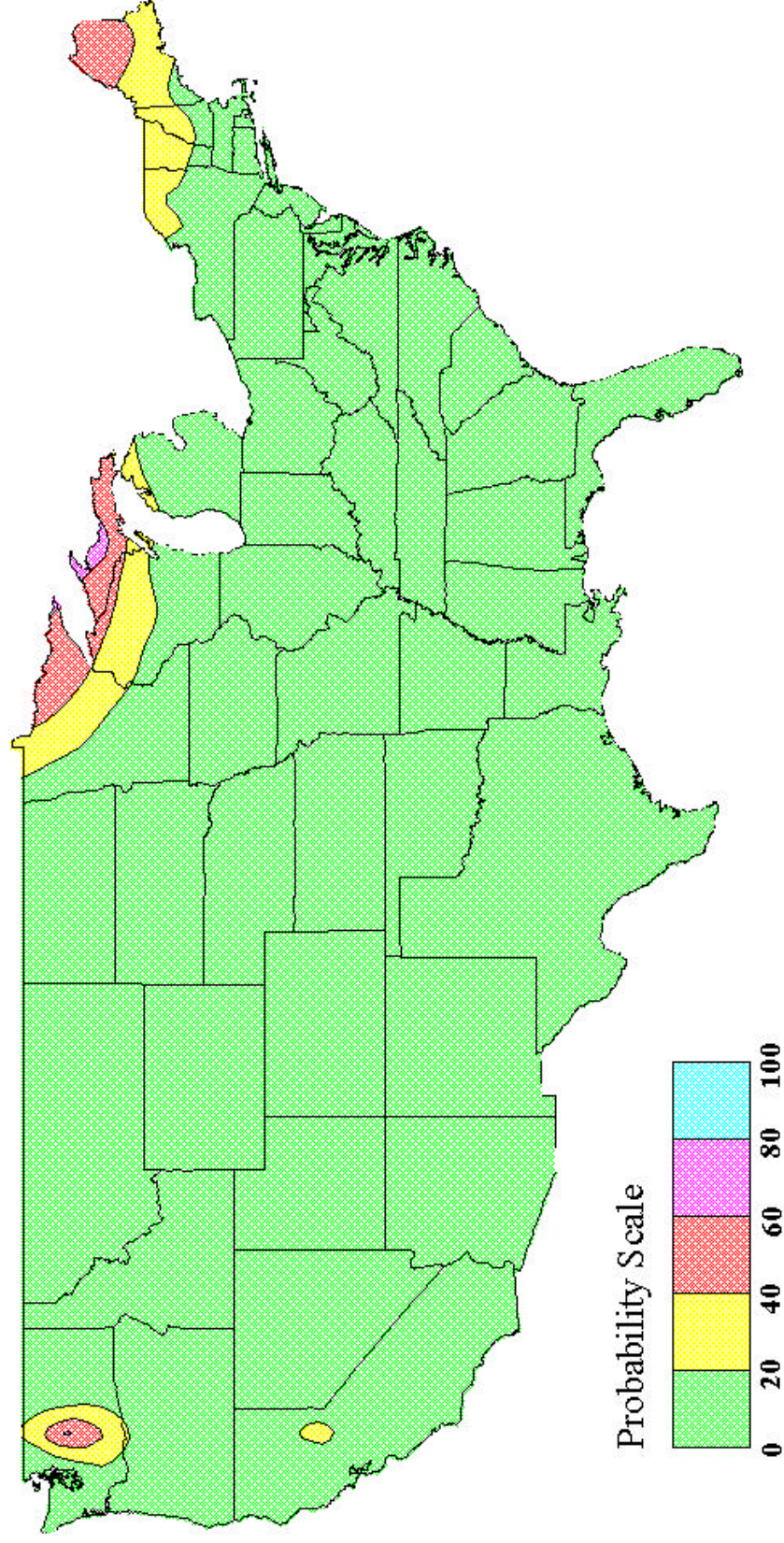
Fig. 4.

Fig. 5.

Fig. 5.



# Probability of Snow Depth 10" or more on Christmas Day



*High mountain areas may have higher probabilities than shown.*

Fig. 6.